



**RICHARD P.
FEYNMAN**
CENTER FOR INNOVATION
at Los Alamos National Laboratory

Platform for Pre-Symptomatic Detection of Citrus Disease

February 18, 2016

Request for Proposal

Los Alamos National Security, LLC (LANS) is the manager and operator of Los Alamos National Laboratory (Los Alamos) for the U.S. Department of Energy National Nuclear Security Administration under contract DE-AC52-06NA25396. Los Alamos is a mission-centric Federally Funded Research and Development Center focused on solving critical national security challenges through science and engineering for both government and private customers.

LANS is seeking industry partner(s) to assist with commercial deployment of the detection platform described below. Please see last section for details on submitting a proposal.

Background and Technology Description

The citrus industry is under a serious threat from Huanglongbing (HLB), which has been by far the most devastating disease of citrus. HLB is a vector-borne disease. *Candidatus Liberibacter* is the HLB causative agent and is transmitted by Asian Citrus Psyllid (ACP). There is no naturally occurring HLB-resistant citrus cultivar nor is there any cure. Tree removal and aggressive sprays against ACP are the common practices to stop the spread of infection. The situation is further exacerbated by the fact that HLB disease symptoms often take two or more years to appear after the initial *Liberibacter* exposure, by which time the disease may be widespread across the grove thereby making tree removal ineffective at halting disease spread. In collaboration with the USDA, the Los Alamos research team performed a systems level study to discover and validate HLB pre-symptomatic biomarkers. Los Alamos is also designing an in-house droplet digital polymer chain reaction (ddPCR) platform to enable rapid, high throughput and cost-effective detection of HLB pre-symptomatic biomarkers.

Potential Areas for Partnership

LANS is seeking partners for the commercialization of this technology to achieve its widespread use. Commercialization will potentially entail further validation of the biomarkers identified from the greenhouse data using field samples, and design of a next-generation ddPCR by improving multiplexing and throughput, to yield a ddPCR platform for detection.

LANS Intellectual Property

LANS Provisional U.S. Patent Application

- Biomarkers for Pre-Symptomatic Diagnosis of HLB (LANS Ref. No. S133327; U.S. Provisional Patent Application No. 62/258,831)

Please note that the U.S. Government retains a worldwide, royalty-free, non-exclusive right to practice any LANS-owned patents and/or copyrighted software. Accordingly, all entities will have open access to any LANS patents and copyrights in performance of a Government contract.

Preferred Partner Attributes

- Demonstrated knowledge of product marketing, sales, and worldwide distribution;
- Expertise to achieve biomarker validation;
- Expertise to achieve successful manufacture of detection kits;
- Willingness to engage in continued R&D related to this technology.

Please note the foregoing is non-exhaustive. LANS welcomes Letters of Interest from any suitable party, and is not necessarily limited to one partner per area of interest.

Commercialization Proposal

This RFP is made without prejudice to any form of collaborative arrangement, alliance, or number of entities. Ability and willingness to ensure compliance with U.S. Export Control law is a requirement. LANS will select the most qualified collaboration partner(s)/licensee(s) based on a review and analysis of all Commercialization Proposals submitted for consideration. At a minimum, the Commercialization Proposal should include the following:

- Description of your company and its mission;
- Explanation of your company's interest in the technology and its relevance to the company's goals and product offering(s);
- Explanation of the scope of rights your company would request in a license from LANS to fully leverage the technology to meet your goals and objectives;
- Articulation of your company's business strategy for deploying the technology for various applications;
- Plan for achieving milestones described in "Potential Areas For Partnership";
- Marketing strategy to identify ideal points of market entry;
- Description of any successes in developing and marketing similar technologies;
- Brief description of your company's financial and human resources available for commercializing this technology; and
- Any questions that you would like to have answered during a follow-on discussions related to commercialization.

You are welcome to include any additional information regarding your company (brochures, product information, etc.) that may help us to evaluate your interest and suitability as a commercialization partner. LANS may host a follow-on webinar to provide additional details regarding this commercialization opportunity. Please properly mark any information that is considered proprietary or business-sensitive. LANS will supply a Nondisclosure Agreement to any U.S. company or person requiring it. LANS reserves the right to select and enter into an agreement with respondent(s) whose proposal best satisfy the interests of LANS; this includes the possibility that no proposal adequately satisfies the interests of LANS. We look forward to reviewing your proposal for advancing this technology towards the commercial marketplace and accelerating its deployment for the benefit of the U.S. economy.

Those companies interested in pursuing this opportunity should direct a proposal, as well as any questions or comments, to lanidx@lanl.gov before 11:59 MDT on April 28, 2016.

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